This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for receiving an optical double sideband signal over an optical fiber system, comprising the steps of:

splitting the received optical double sideband signal into an upper sideband signal and a lower sideband signal;

photodetecting said upper sideband;

photodetecting said lower sideband;

[dispersion] compensating said photodetected upper sideband signal for chromatic dispersion and polarization mode dispersion;

[dispersion] compensating said photodetected lower sideband signal for chromatic dispersion and polarization mode dispersion; and

combining said dispersion compensated upper sideband signal with said dispersion compensated lower sideband signal.

2. (Withdrawn)

3. (Withdrawn)

4. (Previously Amended) The method according to claim 1, further comprising the steps of:

equalizing said dispersion compensated upper sideband signal; and

equalizing said dispersion compensated lower sideband signal.

5. (Original) The method according to claim 1, wherein said combining step is performed using a diversity combiner.

6. (Original) The method according to claim 1, wherein said optical double sideband signal is amplitude modulated.

7. (Previously Amended) The method according to claim 1, wherein said dispersion compensating step of said photodetected upper sideband and dispersion compensating step of said photodetected lower sideband is performed concurrently.

8. (Original) The method according to claim 1, wherein said photodetection step of said upper sideband and said photodetection step of said lower sideband is performed concurrently.

9. (Previously Amended) The method according to claim 4, wherein said equalization step of said photodetected upper sideband and said equalization step of said photodetected lower sideband is performed concurrently.

10. (Previously Amended) The method according to claim 4, wherein the steps of photodetecting and equalizing of said upper sideband and the steps of photodetecting and equalizing said lower sideband are performed serially.

11. (Previously Amended) The method according to claim 4, wherein a plurality of the photo detecting and equalizing steps of said upper sideband and a plurality of the photodetecting and equalizing steps of said lower sideband are performed serially.

12. (Previously Amended) The method according to claim 4, wherein a plurality of the photodetecting and equalizing steps of said upper sideband and a plurality of the photodetecting and equalizing steps of said lower sideband are performed concurrently.

13. (Original) The method according to claim 4, wherein the photodetecting, dispersion compensating and equalizing steps of said upper sideband and the photodetecting, dispersion compensating and equalizing steps of said lower sideband are performed concurrently.

14. (Original) The method according to claim 1, wherein said combining step is a summation.

15. (Original) The method according to claim 1, wherein said combining step is a weighted summation.

16. (Original) The method according to claim 1, wherein said combining step further comprises the steps of:

delaying one sideband signal relative to the other sideband signal; and

summing the two signals.

17. (Original) The method according to claim 1, wherein said combination step is selection of better output.

18. (Original) The method according to claim 1, wherein said combination step is based on link properties.

19. (Original) The method according to claim 1, further comprising the step of filtering the optical signal.

20. (Original) The method according to claim 19, wherein said filtering step is performed using a fiber Bragg grating (FBG).

21. (Original) The method according to claim 19, wherein said filtering step is performed using a thin-film filter.

22. (Currently Amended) A method for generating, transmitting, and receiving an optical double sideband signal, comprising the steps of:

generating an optical carrier;

sending said optical carrier to a modulator;

concurrently encoding an input data signal to produce an encoded data signal;

intensity modulating said fine encoded data signal to produce an optical double sideband signal;

transmitting said optical double sideband signal over a fiber link;

splitting the received optical double sideband signal into an upper sideband signal and a lower sideband signal;

photodetecting said upper sideband;

photodetecting said lower sideband;

[dispersion] compensating said photodetected upper sideband signal for chromatic dispersion and polarization mode dispersion;

[dispersion] compensating said photodetected lower sideband signal for chromatic dispersion and polarization mode dispersion; and

combining said dispersion compensated upper sideband signal with said dispersion compensated lower sideband signal.

23. (Currently Amended) A method of receiving an optical double sideband signal, comprising the steps of:

receiving an optical double sideband signal;

splitting said received optical double sideband signal using a splitter into two branches;

concurrently processing the resulting two branches by applying a filter to each branch to produce a filtered upper sideband signal and a filtered lower sideband signal;

concurrently applying a photodetector to said filtered upper sideband signal and to said filtered lower sideband signal to produce a photodetected upper sideband signal and a photodetected lower sideband signal;

[dispersion] compensating said photodetected upper sideband signal for chromatic dispersion and polarization mode dispersion;

[dispersion] compensating said photodetected lower sideband signal for chromatic dispersion and polarization mode dispersion; and

combining said dispersion compensated upper sideband signal and said dispersion compensated lower sideband signal using a combiner to produce an output signal.

24. (Previously Amended) The method according to claim 23, wherein said combining step is performed using a diversity combiner.

25. (Original) The method according to claim 23, wherein said splitting step transmits an equal optical power to each branch.

26. (Original) The method according to claim 25, wherein said splitting step is performed using a 3dBsplitter.

27. (Currently Amended) A method of generating, transmitting and receiving an optical double sideband signal comprising the steps of:

generating an optical carrier,

sending said optical carrier to a modulator;

concurrently encoding an input data signal to produce an encoded data signal;

intensity modulating said line encoded data signal to produce an optical double sideband signal;

transmitting said optical double sideband signal over a fiber link;

receiving said optical double sideband signal;

splitting said received optical double sideband signal using a splitter into two branches;

concurrently processing the resulting two branches by applying a filter to each branch to produce a filtered upper sideband signal and a filtered lower sideband signal;

concurrently applying a photodetector to said filtered upper sideband signal and to said filtered lower sideband signal to produce a photodetected upper sideband signal and a photodetected lower sideband signal;

[dispersion] compensating said photodetected upper sideband signal for chromatic dispersion and polarization mode dispersion;

[dispersion] compensating said photodetected lower sideband signal for chromatic dispersion and polarization mode dispersion; and

combining said dispersion compensated upper sideband signal and said dispersion compensated lower sideband signal using a combiner to produce an output signal.

28. (Previously Amended) The method according to claim 22, wherein said combining step is performed using a diversity combiner.

29. (Original) The method according to claim 22, wherein said splitting step is performed using a 3 dB splitter.